



National Aeronautics and  
Space Administration  
Goddard Space Flight Center

# Inside Wallops

Wallops Flight Facility, Wallops Island, Virginia

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## *Wallops Supporting Maryland in Pocomoke River Pfiesteria Research*



*Don Penney (AlliedSignal) installs a portable weather station along the bank of the Pocomoke River in Shelltown, MD. The data from the station is being used by Maryland Department of Natural Resources researchers studying fish lesions and a recent fish kill in the river. PAO Digital Photo*

The Wallops Flight Facility is supporting the Maryland Department of Natural Resources (DNR) by providing meteorological equipment to assist in their investigation into fish lesions and a recent fish kill in the Pocomoke River.

Wallops received the request for a weather station to be placed at Shelltown, MD, on August 14 from John Griffin, Department of Natural Resources Secretary, to aid in on-site experiments. The equipment was installed on August 18 by Don Penney and Prentiss Moore (AlliedSignal).

Pete Jensen, Deputy Director of Fisheries Service for the DNR, said the weather equipment provided by Wallops is very important in their research. DNR researchers are looking into a variety of factors that may contribute to the outbreak of the toxic Pfiesteria-like microorganism. One of these factors is weather, he said.

The nearest weather station to the research site at Shelltown is the Wallops Flight Facility, nearly 12 miles away. The portable NASA weather station has been located on the bank of the Pocomoke River, which will give DNR researchers, up-to-date accurate information in the area.

The weather station consists of instruments providing wind speed and direction, temperature, relative humidity, barometric pressure, and precipitation. The data from the instruments is sent to an on-site computer which provides a user-friendly graphic presentation of the data and is updated every five minutes. In addition, the data is archived in the computer for retrieval by the researchers.

The weather station is expected to remain on site until DNR completes its research.

## *TOPEX Altimeter — 5 Years and Still Mapping*

The TOPEX Radar Altimeter achieves its original goal of five years of on-orbit operation, on August 26, and a Wallops team is largely responsible for its success.

Support systems onboard the TOPEX/POSEIDON spacecraft are healthy, and the TOPEX altimeter is continuing to collect data with unprecedented precision. From its orbiting altitude of 830 miles, measurement precision of 1 inch is being achieved. Since the time of its initial operation in space, the altimeter has acquired more than two billion ocean topography measurements, involving more than 23,000 orbits of the earth.

The TOPEX Radar Altimeter Team at Wallops is justifiably proud of the achievement. George Hayne (Code 972), who shares altimeter verification responsibilities, says he has enjoyed his continuing involvement in the TOPEX data improvement and refinement, pushing the results to well beyond original instrument specifications.

Wallops personnel developed the specifications for the TOPEX altimeter, monitored assembly by the Johns Hopkins Applied Physics Laboratory, extensively analyzed its pre-launch testing performance, developed all its data correction algorithms and have continued to monitor its day-to-day

performance in space. The Wallops team also has the responsibilities for recovery commanding from anomalous conditions and for the ongoing data calibration.

David Hancock III (Code 972), the TOPEX Verification Manager, said the highlight event of the project was the successful launch and orbit insertion after all the hard work everyone put in on the TOPEX radar altimeter. Launched in August of 1992, the TOPEX (Ocean TOPographic EXperiment) Radar Altimeter bounces radar pulses off the surface of the Earth, and then collects and averages them at the rate of 20 measurements per second. The onboard processor precisely measures the time interval between each radar pulse transmission and its return echo. Ground computers convert the time intervals and the shapes of the return echoes to measurements of ocean surface topography, ocean wave heights, and wind speeds at the ocean's surface.

Team member Hayden Gordon (CSC) said, "The algorithm development effort we all went through was an excellent example of cooperation between the end-user scientists, the instrument engineers, and the software developers in the generation of a very robust set of steps to transform the altimeter data into a top-notch final product." The huge global data set is

being analyzed by an international team of more than 200 scientists, for improved understanding of global ocean circulation, as well as for ocean tides, ocean winds and ocean waves.

Numerous peer-reviewed TOPEX-related papers have appeared in scientific journals; two special editions of the Journal of Geophysical Research have been devoted entirely to the TOPEX/POSEIDON results. Ron Brooks (CSC) said, "The highlight (of the project) was seeing all those peer-reviewed papers in respected scientific journals proclaiming that the TOPEX data was unsurpassed in quality."

The Project Manager for the altimeter is Laurence Rossi (Code 972). The Altimeter Engineer is Craig Purdy (Code 820), and the Altimeter Performance Assessment responsibilities are shared by David Hancock III and George Hayne. The Software Development Manager is Ronald Forsythe (Code 822). Barton Bull and Norman Schultz (Code 822) have had key roles in the development of the altimeter.

CSC personnel have provided technical support for the TOPEX Project at Wallops since the altimeter's inception. CSC members of the TOPEX team include Dennis Lockwood, Jeffrey Lee, Carol Purdy, Hayden Gordon, Robert Ryan, and Ronald Brooks.

Visitor Center Special  
Events for September

September 6 — Model Rocket Launch

A model rocket launch will be held at 1 p.m. Models of various rockets will be launched. Model rocketeers are invited to bring their own rockets and launch them. The launch will be canceled if it is raining or winds exceed 18 mph.

September 20 — Kite Flight

Kite Flight is the subject of a 1 p.m. program for children 5-10 years of age. The 40 minute activity will look at the history of flight and give an understanding of the various kinds of flight. The children will be given the opportunity to construct and fly their own kite.

Daily — Puppets in Space

Puppets in Space, a 10 minute puppet show, will be presented at 11 a.m. on Saturdays and Sundays. Puppet astronauts and Sam the monkey will explore space flight, including the space suit. Following the puppet show, Visitor Center staff will demonstrate the space suit and answer questions from the audience.

Daily — Space Ace

Children 5-10 years of age can earn a Space Ace certificate and a lithograph during their Visitor Center experience by completing an activity sheet.

Sundays — Humans in Space

Humans in Space is the subject of a 1 p.m. program for children of all ages. The 30 minute program looks at living and working in space, including a review of the astronauts' culinary delights and their wardrobe. The program is followed by a hands-on children's activity during which children have the opportunity to create their own "space helmet".

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Upcoming Training

A Center-funded course, "Listening and Memory Development", will be offered at Wallops from 8:30 a.m. to 4:30 p.m., September 30 - October 1.

This course outlines proven strategies for improving listening and memorization skills using imagery, association and the differentiation of facts and inferences. Upon completing this course, you will be able to:

- Distinguish useful from non-useful information when listening;
- Create categories and sorted lists, while listening, to improve recall;
- Apply memorization techniques to names, faces, facts, figures, ideas and other kinds of information.

To enroll or for further information, contact Matt Jarvis, x66-3061 (e-mail: [mjarvis@pop100.gsfc.nasa.gov](mailto:mjarvis@pop100.gsfc.nasa.gov)) or Sherry Kleckner, x1204.

**Note: The next edition of Inside Wallops will be September 8.**

Tournament Date Set

It's time for the annual Table Tennis Tournament. Last year proved to be a smashing success. It is open to all employees of ACSC, their dependents, contractors and NASA personnel..

The tournament is scheduled for 3 p.m. on September 3 in the Navy BEQ lounge. There is a \$3 entrance fee for the singles competition and a \$3 fee for each doubles team. There will be trophies for the first three winners and a trophy for the winning doubles team. The trophy presentation will be at the completion of the tournament. Each person will play twice, it will be double elimination.

For further information or to register call Todd Winfield, x2079, or Greg Ducasse, x2073. All entrance fees must be paid by August 28.

Sincere sympathy is extended to the family and friends of **Don Jay Shumaker** who died August 15. Shumaker retired as supervisory accounting specialist in the Fiscal Operations Branch in 1982.

Keep Your Cool  
in the Heat

For athletes, as well as the elderly and those in poor physical condition, high heat paired with high humidity can be as dangerous as extreme cold. When humidity is high you tire easily, your heart works harder and prolonged exertion is more difficult.

Hot-weather precautions .....

- Wear loose-fitting clothes made of cotton, linen or rayon. Light colored clothing reflects heat and sunlight.
- Stay out of the mid-day sun when possible. Avoid strong, hot, dry winds.
- Slow down. Exercise in a pool or an air-conditioned room.
- Drink plenty of fluids but avoid alcoholic or caffeinated beverages, which have a dehydrating effect.

Annual Beach Cleanup  
Scheduled

NASA and Navy employees and their families are invited to participate in the Annual Beach Cleanup on the north end of Wallops Island on Saturday, September 20.

The effort is part of the Coastweeks program set up by the Center for Marine Conservation to focus attention

on preserving coastal resources. The cleanup includes collecting and cataloging debris found on the beach.

The cleanup will begin at 9:30 a.m. and typically takes about two hours. Transportation to the beach from the Island Gate is provided.

Come out for a morning walk on the beach. It's a fun way to get some exercise and help preserve our environment. Call the Public Affairs Office, x1584, if you are interested in volunteering.

Retired Women to Meet

Wallops Retired Women will meet at noon on September 3 at the Garden and Sea, Nelsonia, Va. Reservations must be made in advance with Mary M. Gladding (757) 824-5117.

Alumni Get Together

The Wallops Retirees and Alumni Club will meet at noon on September 10 in the Williamsburg Room of the cafeteria. Anyone planning to attend should call Darlene Floyd (757) 336-5662.

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